



Centers for Disease Control
and Prevention (CDC)
Atlanta GA 30333

TB Notes
No. 1, 2001

Dear Colleague:

On March 1, the Division of TB Elimination (DTBE) released the provisional TB data for the United States for 2000. Once again U.S. TB cases have reached a record low: a total of 16,372 cases were reported, representing a 7% decrease from the number of cases reported in 1999. My thanks and congratulations to all of you in TB control who are responsible for these great strides!

As we have done in the past, CDC and many of its partners observed World TB Day in March. World TB Day is held on March 24 each year to commemorate the date in 1882 when Dr. Robert Koch announced to a group of scientists in Berlin, Germany, his discovery of the causative agent of TB and his evidence from exhaustive experiments that proved it. Many state and local health departments took advantage of the event to organize and stage an impressive number of activities about TB, such as press conferences, press releases, health fairs, information booths, educational displays and presentations, op-ed pieces, World TB Day proclamations, and other programs too numerous to mention. Many of these events were undertaken in collaboration with representatives of local lung associations and the nongovernmental organization "Results." CDC observed the occasion on Friday, March 23, through various media: CDC featured World TB Day as a "Spotlight" item on its Internet home page the week of March 19; World TB Day information was also posted on the DTBE Web site. DTBE staff had the following two articles published in the March 23 *MMWR*: (1) Evaluation of a directly observed therapy short-course strategy for treating tuberculosis - Orel Oblast, Russian Federation, 1999-2000. *MMWR* 2001;50(11):201-206, and (2) Tuberculosis treatment interruptions - Ivanovo Oblast, Russian Federation, 1999. *MMWR* 2001; 50(11):201-206. The National Center for HIV, STD, and TB Prevention (NCHSTP) Office of Communications developed a media strategy and press kit around the *MMWR* articles. DTBE also sponsored an event at the CDC Global Health Odyssey on March 23. (The Global Health Odyssey, CDC's museum, is a small exhibit area with an attached theater. For more information on the Global Health Odyssey go to <http://www.cdc.gov/global/general.htm>.) This event involved guest speakers from the community, the American Lung Association, the World Health Organization, DTBE, and the CDC Director's office. An exhibit displaying vintage TB posters from around the world was featured. The Communications and Education Branch of DTBE developed a variety of World TB Day materials that were sent to TB Controllers the week of March 5th. These materials included a fact sheet and trends document, a media relations guide, and a World TB Day poster. The World Health Organization and the American Lung Association issued press releases. I hope you took advantage of the occasion to promote awareness about TB in your area, and to educate as many people as you could that TB is still a problem and that it can be eliminated if we all work together.

Judging from the reports we received from state and local health departments about their World TB Day activities, it appears that many of you did.

In January DTBE began pilot-testing a new system for formally receiving reports initiated by state and local TB Controllers about suspected TB outbreaks. We also had an opportunity for discussion of this system during a recent conference call with members of the National TB Controllers Association (NTCA). This process will allow DTBE to consistently account for the information shared with us. One component of the new reporting system will allow DTBE to track its response and follow-up to outbreaks. It is expected that this systematic documentation of reported outbreaks and CDC's responses to them will aid in documenting our requests for increased resources for TB prevention and control. It should not change the way outbreaks are reported to CDC and should not impose any additional burden on TB control programs. We encourage TB control programs to continue sharing information with DTBE so that resource-intensive events such as outbreaks can be documented and followed up.

The Advisory Council for the Elimination of Tuberculosis (ACET) met in Atlanta on February 13 and 14; following are some highlights. In the Directors' reports, attendees learned that the overall CDC budget was increased by 26%, with all NCHSTP divisions receiving small increases. The legal and statutory implications of the IOM report were reviewed at a special public health law symposium held at CDC. I convened the meeting in collaboration with Tony Moulton, project officer for CDC's Public Health Law Project. The symposium attracted participants from other areas in CDC. Dr. John Ridderhoff of CDC's Public Health Practice Program Office (PHPPO) gave an update on the draft standards for TB drug susceptibility testing developed by the National Committee of Clinical Laboratory Standards (NCCLS); ACET will review the recommendations and issue its findings before the end of the public comment period, January 2, 2002. We heard from the committee that developed and released the IOM report *Tuberculosis in the Workplace*. One conclusion of the committee is that current fit testing methods are not successful; ACET strongly recommended additional research in this area. Dr. Renee Ridzon of DTBE's Surveillance and Epidemiology Branch discussed the current status of the revision of the *MMWR* report "Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care facilities, 1994." Some of the proposed changes: the importance of administrative controls will be stressed; guidance to laboratories will be broadened; and the sections on personal respirators and on engineering controls will be extensively augmented. CDC's response to the IOM report *Ending Neglect: The Elimination of Tuberculosis in the United States* proposes a number of initiatives; the regionalization of certain TB services has been proposed as the first activity. Dr. John Jereb of DTBE's Field Services Branch reported on two cases of hepatitis in persons taking rifampin and pyrazinamide for the treatment of latent TB infection (LTBI); the findings have been published in the *Morbidity and Mortality Weekly Report (MMWR)* series. Dr. Rick O'Brien of DTBE's Research and Evaluation Branch discussed the TB Trials Consortium's Study 26, which will test a short course of the new TB drug rifapentine to improve adherence to LTBI treatment; currently, however, the study has not enrolled enough participants to proceed. For the last presentation, Dr. Tom Shinnick of CDC's

Division of AIDS, STD, and TB Laboratory Research discussed possible roles for laboratory activities, such as DNA fingerprinting, in low-incidence areas. CDC would encourage these areas to enter into partnerships to explore the feasibility of regionalized lab services, as suggested by the IOM report. The group then reviewed the latest draft of the ACET document on low-incidence areas; since members felt that several issues and terms need to be clarified, we will apparently be working on this document a little longer.

As you have heard by now, the 2001 National TB Controllers Workshop will be held June 19-21, 2001, at the Wyndham Baltimore Inner Harbor, located in downtown Baltimore. The theme for this year's workshop is "Ending Neglect - Accelerating the Decline in TB." The attendees will focus on better understanding and planning for TB-related immigration issues, patient language and cultural barriers, targeted testing of high-risk groups and treatment of latent TB infection, and the role of the United States in the global fight against TB. There will be an update on the TB cooperative agreements. The workshop committee has also invited attendees to submit poster abstracts. I look forward to seeing you there!

Kenneth G. Castro, MD

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TB Notes

Centers for Disease Control and Prevention
Atlanta, Georgia 30333

Division of TB Elimination ♦ National Center for HIV, STD, and TB Prevention

Number 1, 2001

HIGHLIGHTS FROM STATE AND LOCAL PROGRAMS

Recommendations on TB Screening of Students in Minnesota

In Minnesota, tuberculin skin testing of elementary and secondary school students was practiced widely until the 1970s, when such screening was discontinued as the prevalence of latent TB infection (LTBI) among students fell below 1% (or to 0% in many schools). While the incidence of TB in many areas of the United States has declined steadily since 1993, the number of cases of TB disease reported in Minnesota has increased markedly in recent years. In 2000, 178 new cases of TB disease were reported statewide, which is the second largest number of cases reported annually since 1980, following the 201 cases reported in 1999. Most notably, a large and increasing percentage of TB cases in Minnesota occur among persons born outside the United States, growing from 50% in 1995 to 82% in 2000. The changing epidemiology of TB in Minnesota reflects trends in the state's population demographics. The number of refugees and immigrants arriving from regions where TB is endemic (e.g., sub-Saharan Africa, Southeast Asia, Latin America, Eastern Europe) has greatly increased.

Recommendations of the Minnesota Department of Health (MDH)

Owing to the increasing incidence and changing epidemiology of TB in Minnesota, the Minnesota Department of Health (MDH) TB Prevention and Control Program has recently received questions from parents, school nurses, teachers, and others inquiring whether TB screening of students is indicated. In response to these concerns, in 2000 MDH convened a multidisciplinary workgroup to discuss the issue. The workgroup consists of school nurses; public health professionals; and clinicians from public TB clinics, private health care facilities, and Student Health Services at postsecondary schools. The purpose of the workgroup was to discuss whether the school setting may be an appropriate means to access high-risk populations for whom targeted TB screening is indicated and, if so, how such screening should be implemented. In collaboration with the workgroup, MDH developed the following guidelines regarding TB screening of students in Minnesota:

Elementary/secondary schools:

- *Universal TB screening (i.e., Mantoux tuberculin skin testing) of all students in school settings is not recommended. This is consistent with national guidelines.*



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resources available from DTBE.

- *Decisions to conduct screening should be based on an assessment of trends in the local epidemiology of TB and pertinent population demographics (e.g., immigration trends) in the community.* The local public health department, in consultation with MDH, should assess the community's incidence and prevalence of TB, identify high-risk groups based on local epidemiology and demographics, and ascertain sites that are convenient for accessing group(s) to whom screening should be targeted (e.g., school, work site, or homeless shelter). On an annual basis, MDH will provide local health agencies with an individualized summary of local epidemiologic TB data to assist in this assessment.
- *Population-based screening for TB in community settings (including schools), when indicated, is primarily the responsibility of local public health departments.* When the school setting is determined to be a convenient site at which to access a high-risk group, the local public health department should work with school nursing staff and school administrators to coordinate any school-based TB screening program. However, local public health agencies should be responsible for overseeing the screening program, ensuring linkages with essential clinical services and financial resources, and ensuring initiation and completion of therapy for LTBI, as indicated.
- *Decisions regarding implementation of a school-based TB screening program should be made jointly by local public health professionals in collaboration with school nurses and school administrators.* MDH is also available for consultation, as needed.
- *A decision to conduct TB screening is a decision to treat LTBI, if identified.* Targeted screening of persons at high risk for LTBI or TB disease must be accompanied by a plan for providing necessary follow-up. This plan must include resources for providing a follow-up chest x-ray, medical evaluation, treatment for LTBI or TB disease, and clinical monitoring during such treatment, as indicated. A plan to address each of these criteria should be developed before screening is initiated.
- *Systematic program evaluation is an integral part of any TB screening program.* Programmatic indicators that

should be evaluated include the number of students with history of prior TB disease or LTBI, the number of tuberculin skin tests administered, the number of tests read and the result of each in millimeters of induration, and rates of initiation and completion of treatment for LTBI (including reasons for discontinuation for those who fail to complete therapy). These data should be reviewed periodically to determine the yield and effectiveness of the screening program. If a low prevalence of TB disease or LTBI or suboptimal rates of completion of therapy are identified, decisions to continue the screening program should be re-evaluated. MDH is available for consultation on implementing a program evaluation system and evaluating resulting data.

Postsecondary Schools:

While the feasibility of targeted TB screening in elementary or secondary schools may often be limited by lack of resources, appropriate infrastructure, or access to health care services for students identified with LTBI or TB disease, the workgroup identified postsecondary schools (i.e., colleges, universities, and vocational/technical schools) as settings in which such screening is indicated and practical. For example, most postsecondary students are 18 years of age or older. Data indicate that the prevalence of LTBI increases with age, and adults with pulmonary TB disease are more likely than young children to be infectious. Postsecondary school students often live in congregate settings that may facilitate transmission of TB. Also, postsecondary students typically have access to student health services, thereby enabling them to obtain medical evaluation and treatment, if indicated. Therefore, with support of the

workgroup, MDH developed the following recommendation:

- *In postsecondary schools, targeted tuberculin skin testing is recommended for all international students originating from (and other students traveling to) countries where TB is endemic.* In this context, “international students” are defined as students who travel to the United States for the purpose of studying at the given postsecondary institution. In addition, all students whose studies involve extensive international travel to areas where TB is endemic are also candidates for tuberculin skin testing prior to travel and 10-12 weeks following their return to the United States.

Screening programs targeted to high-risk postsecondary school students should also reflect the general MDH guidelines for TB screening of elementary and secondary school students (described above). For example, a targeted screening program should be accompanied by a plan for providing necessary medical evaluation, follow-up, and treatment for students identified with LTBI or TB disease. Postsecondary schools at which not all students have access to centralized health care services should consider and identify other means to ensure appropriate follow-up services prior to implementing a targeted TB screening program. Also, programmatic indicators should be routinely and systematically evaluated to assess the effectiveness of the screening program.

These recommendations regarding TB screening of elementary, secondary, and postsecondary school students are general public health guidelines focused on decisions about population-based screening in the school setting. They are

not intended to be clinical guidelines for determining whether screening is indicated for a specific patient. As indicated by current national guidelines, clinicians should carefully assess each patient's individual risk factors for TB when making decisions about TB screening, evaluation, and treatment for a given patient.

Related Resources

With input from the workgroup, MDH developed several practical tools for use by school staff and public health professionals following the diagnosis of a case of infectious TB disease in the school setting. These tools include fact sheets, prototype letters addressed to parents and guardians of students at the school and those students for whom TB screening is recommended, and a letter to notify local clinics about a school-based contact investigation so providers can anticipate calls from parents. MDH recommendations regarding TB screening of students and related resources are available on the MDH TB Program's Web site (<http://www.health.state.mn.us/tb>).

—Submitted by Wendy Mills, MPH
Epidemiologist and Acting TB Supervisor
Minnesota Department of Health

Revised Strategic Plan for TB Elimination Released in New Jersey

The New Jersey Department of Health and Senior Services (NJDHSS) released its *Revised Strategic Plan for the Elimination of Tuberculosis in New Jersey (2000)* in conjunction with World TB Day. The plan was developed by the Tuberculosis Advisory Steering Committee of the New Jersey Thoracic Society at the request of the NJDHSS.

The original State TB Plan (1992) focused on four prevention and control strategies:

surveillance, disease prevention, disease containment, and program assessment and evaluation. The revised plan updates these recommendations in light of the Institute of Medicine (IOM) report, *Ending Neglect: The Elimination of Tuberculosis in the United States*. In addition, the revised plan has been shaped by many of the joint statements of the American Thoracic Society (ATS) and CDC, the latest of which was *Targeted Tuberculin Testing and Treatment of Latent Tuberculosis Infection*. These and other applicable publications, as well as pertinent TB Web sites and links, are included in the "Pertinent References" section at the end of the plan.

The revised plan includes two new sections: "Funding" and "Training and Education." The committee felt that adequate funding, with the implementation of the plan, would contribute greatly to the achievement of the case-rate objective for TB that is included in *Healthy New Jersey 2010, A Health Agenda for the First Decade of the New Millennium*: Reduce the incidence of TB to 2.4 cases per 100,000 population. For reference purposes, the active TB case rate for 2000 was 6.7 cases per 100,000 population. The NJDHSS will continue its collaboration with the New Jersey Medical School National TB Center for training as well as for other TB strategies.

The Steering Committee is developing a work plan to prioritize activities and methods and recommend milestones and completion dates. Once received, NJDHSS staff will expand the work plan to include assigned staff and provide periodic status reports.

The revised plan can be found at the NJDHSS Web site at www.state.nj.us/health/.

—Submitted by Kenneth Shilkret
Sr. Public Health Advisor
TB Program Manager, NJDHSS

Minnesota State Health Department Holds TB Incentives Drive

The use of incentives can play an important part in helping TB patients adhere to the lengthy treatment regimen needed to cure their disease. Unfortunately, most public health departments are strapped for funds to purchase such “luxuries.” Some of us know of TB program staff members who frequent garage sales and second-hand stores to purchase incentive items for their patients. As a special holiday project in December 2000, staff from the TB Prevention and Control Program at the Minnesota Department of Health (MDH) coordinated a drive to collect items to be used by local health departments statewide as incentives for their TB patients. We invited our coworkers in the Division of Infectious Disease Prevention and Control to join us in a “Holiday TB Incentives Drive.” Signs advertising the project were posted around the building, and a box was placed in a central area in which our coworkers could deposit items. We encouraged donations of nonperishable food; toiletries; and new or gently used winter clothing, kitchen equipment, toys, and books.

We were overwhelmed by the generous response from our coworkers. During 1 month, nearly 600 items were donated. Two especially nice donations included over 100 new Boyd stuffed animals contributed through a charitable organization and 75 toothbrushes donated by a staff member’s dental office. The Boyd toys and boxes of matching clothes for the animals arrived straight from the factory, so we held a lunchtime “tea party” at which epidemiologists, clerical staff, and nurses joined together to unpack boxes and dress

teddy bears over cookies and milk! At the end of the month-long drive, TB Program staff sponsored a doughnut and coffee break for our coworkers at MDH to express our appreciation for their enthusiastic participation and generosity.

In Minnesota, local health departments in 87 counties perform direct TB services such as contact investigations and directly observed therapy. The MDH TB Program is distributing the donated incentive items to these local public health agencies’ TB programs based on the local incidence of TB, the complexity of cases, and the local agencies’ particular needs. Local TB staff members have appreciated this demonstration of support for their efforts, and patients have enjoyed the incentives. Additional benefits of this project have included strengthened relationships between MDH TB Program staff and our coworkers in other disease prevention and control programs and increased awareness among MDH staff about the activities and special needs of local TB programs. Owing to the success of this first Holiday TB Incentives Drive, we plan to continue the project in upcoming years and possibly to expand it into an ongoing effort throughout the year.

—Submitted by Deborah Sodt, RN, MPH
TB Nurse Consultant
Minnesota Department of Health

UPDATES FROM THE FIELD SERVICES BRANCH

DTBE Resumes Public Health Advisor Recruiting and Training Program

Ten persons were hired into entry-level public health advisor positions in November 2000 and assigned to the New Jersey, Florida, and Chicago TB programs on January 14, 2001, for 2 years of initial

training. The new staff will work at the clinic level and gain experience in conducting surveillance; program operations, including directly observed therapy, contact investigation, and targeted screening and treatment for latent TB infection; liaison with public and private health care providers, hospitals, and laboratories; patient and public health education activities; and public awareness campaigns. Upon successfully completing the 2-year training program, they will be transferred to other field duty stations for additional experience leading to development of competencies in TB program management.

A unique feature of the long, productive partnership between DTBE and state and local health departments is the assignment of CDC-trained public health advisors to assist with the management of TB programs in the United States. Since the early 1960s, many of DTBE's public health advisors have come from CDC's Division of Sexually Transmitted Disease Prevention (DSTDTP), where they received basic public health training and experience in field assignments. Others with TB experience in health departments and organizations such as the Peace Corps have been hired directly by DTBE. In 1993, DTBE initiated and operated a 2-year entry-level training program for public health advisors in collaboration with the TB Control Program, New York City Department of Health. This was the first venture in training a new cohort of public health advisors in a program other than DSTDTP. Although it was very successful, it was discontinued because, subsequent to a CDC review of the public health advisor series, CDC placed a moratorium on recruiting public health advisors in 1994. There was no CDC-wide recruiting for the public health advisor series after 1993, until last year. As

a result, DTBE encountered increasing difficulty identifying candidates for GS-9 and GS-11 positions in the diminishing pool of public health advisors in DSTDTP. To compound the problem, some of DTBE's senior field public health advisors have been selected for headquarters positions, others have transferred to other CDC programs, some have retired, and others are approaching retirement eligibility. The declining numbers notwithstanding, the demand by state and local health departments for assignment of public health advisors to serve as on-site technical program consultants and management assistants has not decreased.

DTBE's planning for resumption of the recruiting and training program began in 1999. In a letter dated August 27, 1999, state and local TB control officers and managers were informed of the plan to resume recruiting and were invited to submit a proposal, if they were interested in having new staff assigned to their health department for a 2-year training period. Criteria that had to be met were as follows: there must be a CDC senior TB public health advisor on assignment who is willing to take on the added responsibility of managing an entry-level training program; the TB control officer and other officials must agree to participate with DTBE in the training venture; and the jurisdiction served by the health department must report at least 200 new TB cases per year. Proposals were received from 10 state and city health departments. The proposals were evaluated by six independent reviewers representing the Office of the Director and the Prevention Support Office, NCHSTP; the Communications and Education Branch, the Surveillance and Epidemiology Branch, and the Computer and Statistics Branch, DTBE; and the Training and Health Communications

Branch, DSTDP. The proposals were ranked through a thorough evaluation process. The top three, New Jersey, Florida, and Chicago, were selected as the training locations. On June 28, 2000, the CDC Human Resources Management Office posted internal and external vacancy announcements for ten GS-9 public health advisor positions in Jersey City and Edison, New Jersey; Orlando, Ft. Lauderdale, and West Palm Beach, Florida; and Chicago, Illinois. Approximately 100 applications were received. Interviews and evaluations were conducted in September and October, and selections and job offers were made in November.

The new staff will work with experienced clinic and outreach staff in their assignment areas and acquire the basic public health experience that is the essential foundation for a career in TB program operations and management. Ken Shilkret in New Jersey, Heather Duncan in Florida, and John Kuharik in Chicago are the state/city supervisors of the program. The Field Services Branch is managing the program and is responsible for providing guidance, leadership, course work, and quality assurance during the training period.

See the "Personnel Notes" section of this issue for the names of and brief statements about the new staff.

—Reported by H. Mack Anders
Division of TB Elimination

New OSHA Guidelines to Prevent Needlesticks

On November 6, 2000, the President signed the Needlestick Safety and Prevention Act, Public Law 106-430, which requires the Occupational Safety and Health Administration (OSHA) to revise its bloodborne pathogens protection standard

within 6 months of the law's enactment. Congress was prompted to take action in response to growing concern over bloodborne pathogen exposures from sharps injuries. CDC has estimated that health care workers in hospital settings sustain 384,325 skin-piercing injuries each year. When nonhospital health care workers are included, the estimate increases to over 580,000 workers.

OSHA has revised the standard in compliance with the Act. The revised standard was published in the *Federal Register* on January 18, 2001, before becoming effective on April 18, 2001. The following Web site includes the OSHA citations and the *Federal Register* text: <http://www.osha-slc.gov/needlesticks/index.html>

The revisions clarify that safer medical devices are considered to be engineering controls under the new standard. The term "engineering controls" includes all control measures that isolate or remove a hazard from the workplace. The expanded definitions reflect the intent of Congress for OSHA to clarify the original standard, and to reflect the development of new, safer medical devices since that time. The revised standard does not reflect any new requirements being placed on employers with regard to protecting workers from sharps injuries.

The standard calls for employers to select safer needle devices — such as sharps with engineered sharps injury protections and "needleless" systems — as they become available, and to involve employees in identifying and choosing the devices. Employers are also required to annually review their exposure control plans to reflect consideration and use of safer medical devices that are commercially

available.

The Act mandates that employers create a sharps injury log containing detailed information about any sharps injuries that occur in the workplace. The requirement for a sharps injury log will not take effect until January 1, 2002, at the earliest. Therefore, employers must keep a separate sharps log from the effective date of this rule until that time.

In addition, the Act establishes a new clearinghouse within CDC's National Institute for Occupational Safety and Health (NIOSH) to collect data on engineered safety technology designed to prevent the risk of needlesticks and other sharps injuries. NIOSH will have access to the sharps injury logs in order to carry out these duties. The clearinghouse would also create a model training curriculum for employers and health care workers. To carry out these duties, NIOSH has been authorized \$15 million in new funding.

The Act recognizes that no one medical device is appropriate in all circumstances of use. For purposes of this standard, an "appropriate" safer medical device includes only devices whose use, based on reasonable judgment in individual cases, will not jeopardize patient or employee safety or be medically contraindicated. OSHA recognizes that a safer device may not be available for every situation. If an employer finds that an appropriate device is not available in the marketplace, the employer is required to document that fact in the annual exposure control plan. The employer must indicate in the plan what device was tried, what the results of the assessment were, and what is being done in lieu of using a safer medical device, such as not recapping needles. The employer must also state in the plan the intention of

continuing to evaluate new devices until an appropriate one can be found.

The 23 states and two territories that have their own occupational safety and health plans are required to adopt a comparable standard within 6 months of the publication of the final federal OSHA standard. These states and territories include the following: Alaska, Arizona, California, Connecticut (for state and local government employees only), Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, New York (for state and local government employees only), North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Virgin Islands, Washington, and Wyoming.

We have received questions about this new standard from one state TB control program with concerns that the new and safer needleless devices may not be appropriate when administering a Mantoux TST. To learn about these devices, check the following Web site, which contains information on a variety of equipment suppliers:

<http://www.med.virginia.edu/medcntr/center/s/epinet/products.html>. Please be aware that the technology is evolving, and additional devices will be available. Readers are advised to keep up with new products that come on the market. In addition, we suggest you contact the local Occupational Safety and Health office or, if there is not one in your area, the federal Occupational Safety and Health Administration for guidance on mandated activities. We will continue to collect information on TST-related questions regarding this new standard.

—Reported by Judy Gibson, RN, and Paul Tribble
Division of TB Elimination

Announcement of a New DTBE Records System for Outbreak Response

DTBE is frequently notified by state and local health departments about potential TB outbreaks. In a joint project between the Field Services Branch and the Surveillance and Epidemiology Branch, DTBE is implementing the evaluation of a new system for receiving and formally recording reports of suspected TB outbreaks. The new system includes standard records of notifications and responses. With this documentation, DTBE will be better able to account for instances requiring additional interventions by state and local health departments, and collaborative efforts between CDC and state/local health departments. These data will be used for planning purposes and to support advocacy for additional resources for prevention and elimination. The documentation will also assist in procuring one-time funding for cooperative agreement sites responding to outbreaks.

At this time, DTBE is not requesting changes in the ways that state and local health departments share information about suspected outbreaks; this change relates to the way DTBE receives the information. The program consultants in the Field Services Branch will continue to discuss these situations with state and local TB control personnel as they have for years. Suspected outbreaks can be brought to the attention of the program consultants by calling (404) 639-8125.

—Reported by John Jereb, MD
Division of TB Elimination

MMWR Addresses TB Prevention and Control on the U.S.-Mexico Border

In 1999, 43% of the TB cases reported in the United States occurred among the

foreign-born and 23% of these were persons born in Mexico. This can be attributed to converging factors that have elevated TB incidence and complicated case management in the American states bordering Mexico. In order to develop specific strategies to meet these new challenges, DTBE convened a working group of TB control officials from the border states affected — Arizona, California, New Mexico, and Texas — in June 1999. The working group's deliberations can be found in the *Morbidity and Mortality Weekly Report (MMWR) Recommendations and Reports (R&R)* dated January 19, 2001. The text of this and other *MMWRs* can be accessed on-line at http://www.cdc.gov/mmwr/mmwr_rr.htm

The recommendations outline steps that local, state, and federal TB programs can take to improve TB prevention and control in border areas. CDC supports the working group proposals and is committed to taking the next steps toward strengthening tuberculosis prevention and control efforts along the U.S.- Mexico border.

This report contains comprehensive recommendations for four main topics:

- Surveillance, which may include a binational case registry and a uniform case definition to enable standardized data collection and increase accuracy in data analyses and comparisons
- Case management and therapy completion, which includes addressing the complexity of case management across international borders through prompt diagnosis, close monitoring of medical regimens, assurance of adherence to treatment, and identification and evaluation of close contacts
- Performance indicators, which should

include targeted TB testing among border populations, linkage of laboratory data regarding binational TB patients diagnosed in Mexico, and evaluation to facilitate the most effective means of contact tracing

- Research, to address the needs of two groups: binational patients and their close contacts, and patients who acquired TB in Mexico or Central America and their contacts in the United States; research findings should be used to develop sound strategies for active case finding as well as for targeted testing and treatment of populations at risk for TB infection, and promotion of regional TB control efforts along the U.S.-Mexico border

Improving TB prevention and control along the border will require that we and our partners sustain existing programs and address new challenges.

—Submitted by Mark Lobato, MD
Division of TB Elimination

TB Education for Undergraduates

"Starting Early: TB Education for Undergraduates" was the title of a brown bag seminar sponsored by the Field Services Branch, DTBE, on February 1, 2001. The speaker, Dr. Richard Fluck, has taught a multidisciplinary, first-year seminar about TB for 2 years at Franklin & Marshall College, a small liberal arts school in Lancaster, PA. The course approaches TB from the perspectives of biology, medicine, sociology, economics, history, epidemiology, public policy, and public health law. Readings include *The White Plague: Tuberculosis, Man, and Society* (René and Jean Dubos), *Core Curriculum on Tuberculosis: What the Clinician Should Know*, and five papers from the primary

and review literature.

The heart of the course is a semester-long project in which groups of 3-4 students study a topic of their choice and write a pre-proposal, a proposal, a progress report, and a final paper. Topics have included TB vaccines, HIV and TB, pediatric TB, DOTS-Plus as a strategy for treating MDR TB, and the role of public policy in addressing events such as the outbreaks that occurred in New York City in the late 1980s and early 1990s and the ongoing epidemic in Russia.

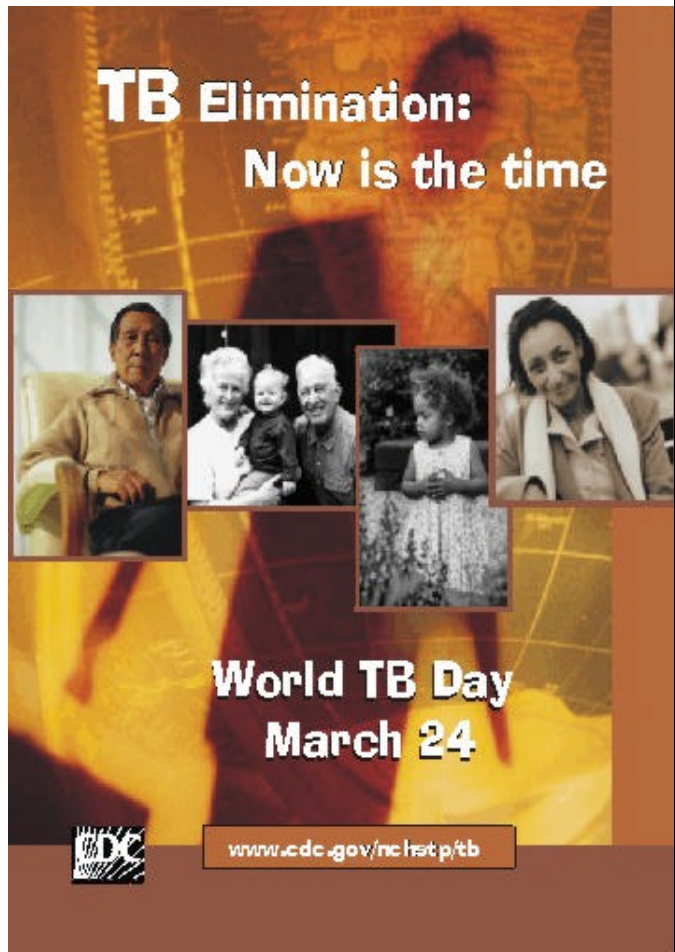
As a direct outgrowth of the success of this course, Dr. Fluck and his students have launched an effort to gather, develop, and disseminate educational materials about TB in their community. Targeted audiences include patients at a community clinic and those at a comprehensive care clinic for HIV/AIDS, the homeless, and migrant workers. Dr. Fluck is also planning faculty workshops for professors who are interested in teaching similar courses at other institutions. One will be offered at Franklin & Marshall College and another at the National TB Center in Newark, NJ. Dr. Fluck believes that undergraduate students should learn about TB (and public health) early in their careers and that these students and their instructors can be effective partners in the fight against the global TB epidemic.

If you would like a copy of the syllabus for the course or if you have questions or comments for Dr. Fluck, you can contact him in writing (Dept. of Biology, Franklin & Marshall College, P.O.B. 3003, Lancaster, PA 17604-3003 U.S.A.), by telephone (717-291-4152), by fax (717-399-4548), or by e-mail (r_fluck@acad.fandm.edu).

—Submitted by Richard A. Fluck, PhD
Franklin & Marshall College, Lancaster, PA

UPDATES FROM THE COMMUNICATIONS AND EDUCATION BRANCH

World TB Day Observed at CDC



CDC held an observance of World TB Day on Friday, March 23, for CDC employees. The purpose of this observance was to remind us that although great advances have been made in the control and management of TB, there is still much to be done to advance TB elimination, both in the United States and globally. This year's World TB Day program for CDC used a three-pronged approach to demonstrate how far we have come, why we need to

continue, and what the future might hold for TB elimination efforts. This approach consisted of the following activities. First, a TB exhibit at CDC's Global Health Odyssey officially opened. This special exhibit on TB was developed in collaboration with the American Lung Association (ALA) to present the history of TB control and management. This was achieved through the use of materials on loan from individuals and from the archives of the ALA. The historical perspective of this exhibit chronicled the great advances that have been made in TB control. The exhibit opened on Friday, March 23. Second, a speaker gave a personal account about the impact of having TB. The third component was a series of speakers who provided an overview of the future of TB elimination. Their topics included research on shorter courses of therapy, TB vaccines, and global assistance to facilitate TB elimination in countries abroad. The TB exhibit was attended on its opening day by a number of high-level CDC staff and remained on display at the Global Health Odyssey throughout the following week.

*—Reported by Scott McCoy
Division of TB Elimination*

Development of Training and Education Materials for Baltic-Country Nurses

In early February, two members of DTBE, Dr. Kayla Laserson and Wanda Walton, went to Estonia to participate in a workgroup convened to develop training and education materials and a training course for nurses in the Baltic countries (Estonia, Latvia, and Lithuania). These materials and a training course are needed to address the knowledge, skills, and abilities (KSAs) needed by nurses in this area as they move from an inpatient-only TB program to a program that includes outpatient care as well.

In addition to the DTBE representatives, workgroup members included a number of Estonian, Latvian, and Finnish health care professionals. Representing Estonia were Kai Vink, head of the Estonia National TB Program, Tartu University Lung Hospital, Tartu; Manfred Danilovits, head of the TB Department, Tartu University Lung Hospital, Tartu; Kersti Viitkar, Chief Nurse, Tartu University Lung Hospital, Tartu; Anu Kurve, head of the Ambulatory Department, Kivimäe Hospital, Tallin; Haeinart Sillatsu, manager of the Training Project, Tartu University Lung Hospital, Tartu; and Kersti Kloch, technical assistant of the workshop, Tartu University Lung Hospital, Tartu. Vaira Leimane, head of the Latvia National TB Program, Riga, represented Latvia. Two members, Viveca Bergman and Sirkku Grierson, are affiliated with the Finnish Lung Health Association. The workgroup representative from the World Health Organization (WHO) was unable to attend due to travel difficulties.

Over the course of 2 days, the group reviewed a variety of materials utilized for educating and training nurses. This included materials developed by DTBE, WHO, the New Jersey Medical School National TB Center, and Médecins Sans Frontières (MSF). After discussions, the group decided that the training course materials would be based upon the DTBE *Self-Study Modules on Tuberculosis 1-9*, which would be revised and adapted using the other materials and program-specific guidelines. The materials are to be tailored to the setting of the Baltic countries. Specific recommendations for revisions to each module were decided by group consensus. Additional examples and exercises for the course will be used from other sources as needed.

Each meeting participant or that person's

delegate was assigned one of the nine modules for appropriate revision; a workplan with a timeline and a budget was also developed. In addition to the modules, a training course based upon the modules will be conducted in Estonia in October 2001 for a group of nurses from the Baltic countries. The educational materials and course materials will then be revised for additional training courses in the Baltic countries, as well as Russia. The group was very enthusiastic about the plans for developing and disseminating these materials and training modules to address the education and training needs of nurses in the area in their changing role in TB control programs.

—Reported by Wanda Walton, MEd,
and Kayla Laserson, ScD
Division of TB Elimination

Join TB-EDucate!

DTBE and the CDC National Prevention Information Network (CDC NPIN) are pleased to announce the formation of TB-EDucate, an education and training e-mail listserv. TB-EDucate provides subscribers the opportunity to ask questions, share comments, and exchange information with other subscribers about TB health education and training issues. TB-EDucate is open to anyone who has an interest in these topics. However, TB-EDucate is not meant to be a forum for requesting or providing patient-specific information.

Subscribers have the option of receiving either immediate delivery of each message, or once-daily delivery of a digest containing all messages posted in a 24-hour period. To subscribe to TB-EDucate with immediate delivery, send a blank message to: tb-educate-subscribe@cdcnpin.org. To subscribe to TB-EDucate and receive it in digest format, send a blank message to:

tb-educate-digest-subscribe@cdcnpin.org

—Submitted by Maria Fraire, MPH, CHES
Division of TB Elimination

TB Program Managers Course

The Communications and Education Branch (CEB) would like to thank the faculty and participants of the June 2000 *TB Program Managers Course* for making the course such a success. We appreciate the faculty's hard work in preparing the materials for their sessions and the participant's hard work during the course. Preliminary overall evaluation results indicate the following:

- 97% of the participants improved their knowledge scores from precourse test to postcourse test;
- 77% of participants rated the overall quality of the course as excellent and 17% rated the course as good; and
- 80% of the participants indicated that at least 8 of the 12 knowledge, skill, and ability (KSA) areas were adequately covered (50% indicated that all 12 KSA areas were adequately covered).

Plans are now underway for the 2001 *TB Program Managers Course*, to be held October 15-19 in Atlanta. The *TB Program Managers Course* is a 17-session program designed for TB Program Managers, Nurse Consultants, Public Health Advisors, and TB Controllers who have programmatic responsibilities at the state, city, or regional level. There are no registration fees for attending the course, but each attendee's organization is responsible for that person's travel, hotel, and per diem expenses. The course will be held at the Sheraton Colony Square Hotel, which is at 14th Street and Peachtree in Atlanta's Midtown area.

The 2001 *TB Program Managers Course* will be limited to 30 participants, who are nominated by the DTBE Program Consultants.

The criteria for participating in the course are as follows:

- Position as a TB Controller, TB Program Manager, Nurse Consultant, or Public Health Advisor;
- Programmatic responsibilities at the state, city, or regional level;
- 6 months to 3 years of experience in a TB program management position;
- 90% or greater score on the prerequisite pretest (basic TB knowledge); and
- Recommendation by a DTBE Consultant.

Program Consultants have been working to identify possible participants and we hope to have the course filled by the end of April.

—Reported by Scott McCoy
Division of TB Elimination

UPDATES FROM THE RESEARCH AND EVALUATION BRANCH

The Global Alliance for TB Drug Development

After several decades of neglect, TB is receiving the increased attention that this global public health problem deserves. Governments, nongovernmental organizations, and philanthropic organizations are beginning to invest the major sums of money required to control and eventually eliminate this ancient scourge. Although most of these new resources are appropriately being invested in the TB control programs of countries where the epidemic is most severe, a significant commitment is also being made

to develop new diagnostic, treatment, and prevention tools, including new drugs. Until now, progress in anti-TB drug development has been impeded by two major factors: the belief that there was little need for new agents and the high cost of drug development. These caused the perception that the potential global market was insufficient to guarantee return on investment. To address these problems, a number of interested parties, with initial support from the Rockefeller Foundation, have created the Global Alliance for TB Drug Development (GATB), a not-for-profit venture that will accelerate the discovery and development of new drugs to fight tuberculosis. It is one of a new breed of public-private partnerships that pursues a social mission by employing the best practices of the private sector and draws upon resources from both the public and private realms. The vision of GATB is the provision of new medicines with equitable access for the improved treatment of tuberculosis. Its mission is to accelerate discovery and development of cost-effective new drugs that will shorten the duration of treatment or otherwise simplify its completion, provide for more effective treatment for MDR TB, and improve the treatment of latent TB infection. GATB functions as a lean, virtual research and development organization that subcontracts projects to public or private partners. It will selectively intervene when its actions will help move a drug candidate towards registration and use in therapy, and, thus, build a portfolio of projects with varying levels of funding, management, and ownership. To be successful, this will require continued and increased support by national and international health organizations, private sector pharmaceutical and biotechnology companies, and foundations. By combining our resources, GATB and its partners can

make a vitally important contribution to improved control and the eventual elimination of TB from every country of this world. Use the link www.tballiance.org for more information on the GATB.

—*Reported by Richard J. O'Brien, MD*
Division of TB Elimination

Training in Prevention Effectiveness and Program Evaluation

The Prevention Effectiveness Section (PES), within the Research and Evaluation Branch, conducts a variety of studies using a wide range of research methods, including decision and economic analyses, behavioral and social research techniques, and program evaluation tools. Recognizing the growing importance of these methods, PES has undertaken two training initiatives to help increase the skills and capacity of state and local TB program staff to conduct prevention effectiveness and program evaluation studies.

Prevention Effectiveness: Over the last few years, CDC's Epidemiology Program Office (EPO) has developed and delivered two prevention effectiveness training courses, which consist of a series of didactic lectures and small-group case study discussions. One course focuses on decision and economic analyses (such as cost-benefit, cost-effectiveness, and cost-utility analyses), and the other focuses on cost analysis. During 2000, PES held two 2-day courses on how to use decision and cost-effectiveness analyses: one for 24 state and local TB staff members in Berkeley, California, in June, and the other for 29 state disease control staff members in Augusta, Maine, in October.

In early February 2001, PES collaborated with EPO to conduct a 2-day course on cost analysis for 25 state and regional

disease control staff members in Columbia, South Carolina. The course is also being developed into a print-based, self-study module with a TB case study, which will be pretested this summer. If you would like to pretest the module, please contact PES at (404) 639-8123.

Program Evaluation: In September 1999, CDC published the report *Framework for Program Evaluation in Public Health*, *MMWR* 1999:48(No. RR-11). This can be accessed on-line at http://www.cdc.gov/mmwr/indrr_99.html. This framework provides a six-step process for public health programs to use in evaluating their interventions and operations, and provides a systematic way for diverse programs to effectively and systematically conduct evaluations. Understanding how to apply the framework to a TB program requires evaluation skills.

PES collaborated with an experienced contractor to develop and produce a TB-specific training course to introduce program evaluation methods to state and local TB program staff. The course introduces participants to the basic principles of evaluation and walks them through the six-step evaluation process. Course participants work through several TB case studies to illustrate concepts such as developing a logic model and selecting an evaluation design.

On February 1 and 2, 2001, a train-the-trainer course was held to create a cadre of evaluators-trainers within DTBE. Feedback from the course was overwhelmingly positive, and generated additional suggestions for improvements, which will be incorporated into future courses. PES is currently in the process of finalizing the comprehensive 2-day course for replication in other settings, adapting sections of the

course for a 4-hour skill-building session on logic modeling, and developing a 2-hour introduction to evaluation principles.

If you would like more information about the prevention effectiveness or program evaluation training courses, please contact Dr. Noreen Qualls or Ms. Maureen Wilce, respectively, at (404) 639-8123.

—Reported by Noreen Qualls, PhD,
and Maureen Wilce, MS
Division of TB Elimination



Peter Ciegelski, MD, of DTBE's International Activities showed his dedication to the cause on Friday, March 23, by adorning his car and himself with the "Stop TB!" logo. We hope he was able to raise a bit of awareness about TB on his way to and from work that day.

INTERNATIONAL ACTIVITIES UPDATE Latvian Center of Excellence Established

The International Activities branch of DTBE is involved in an ongoing project with the National TB Program (NTP) of Latvia to establish a Center of Excellence for the diagnosis, treatment, and management of multidrug-resistant TB (MDR TB). Latvia, a former republic of the Soviet Union, is being challenged with a substantial epidemic of MDR TB. After the disintegration of the Soviet Union in 1991, Latvia faced substantially depleted

resources for TB control, resulting in erratic and unreliable supplies of anti-TB drugs. Additionally, treatment regimens were inadequate and treatment completion rates, as a rule, were very low. Furthermore, institutional infection control was inadequate, resulting in high levels of transmission of *M. tuberculosis* in prisons and hospitals and high numbers of staff developing TB and MDR TB. There were major delays in the diagnosis of drug resistance due to poor laboratory proficiency.

In 1996, Latvia participated in the first global anti-TB drug resistance survey, which was conducted jointly by the World Health Organization (WHO) and the International Union Against TB and Lung Disease (IUATLD). Latvia had the highest level of MDR TB of any of the participating 35 countries; 14.4% of its new TB cases were MDR, or roughly 1 out of 7. Latvia's neighbor, Estonia, also had high levels, at 10%, reflecting the regional impact of the disintegration of the Soviet Union.

The Latvian NTP responded as quickly and effectively as possible with the very limited resources available and with some limited financial and technical assistance from donor countries. Modeled on the United States' response to the MDR TB epidemic in New York City in the early 1990s, the initial steps taken by Latvia included fully implementing the WHO-defined DOTS strategy, improving the national laboratory proficiency and capacity, and addressing infection control issues in hospitals. The Latvian national surveillance system was also improved by adopting WHO reporting standards. By 1998, the Latvian NTP started a civilian and prison DOTS-plus program to treat the roughly 200 MDR TB patients diagnosed each year, which resulted in a 30% reduction in the level of

MDR TB in Latvia.

Given the facts that the Latvians had made great strides and developed much expertise in mobilizing against MDR TB, yet also needed continued support to advance their progress in reducing MDR, an idea evolved to establish the Latvian National TB and Lung Disease Center as a regional Center of Excellence for the treatment and management of MDR TB. This collaborative project between CDC and the Latvian NTP began in late 1999 and is funded by the U.S. Department of State and the U.S. Agency for International Development (USAID). The specific objectives of the project are to assist the Latvian NTP in further reducing the country's MDR TB burden, to establish a sustainable model of MDR TB management in a resource-limited country, and to use the Center to train clinicians from other former Soviet republics that are facing similar issues with MDR TB.

The project consists of several components. The initial component is centered on continuing to build Latvian clinical expertise for MDR TB. First, a comprehensive training course taught by U.S. experts was held in March 2000 for the 22 Latvian physicians who treat MDR TB. Subsequently, a "telemedicine" (or videoconferencing) project was launched at the Center in June 2000 for monthly clinical case review with CDC MDR TB clinical experts. At the most recent conference, MDR TB experts from Partners in Health at Harvard University also participated. Additional laboratory upgrades for more rapid diagnosis of MDR TB are being made. The cost-effectiveness of using new technologies will be carefully studied. Moreover, continued improvements are being made regarding infection control. In August 2000, a TB infection control expert from the National Institute for Occupational

Safety and Health (NIOSH) was sent to the Center to perform a full assessment and develop a comprehensive strategy and plan for improving infection control throughout the 500-bed facility. It is hoped that the measures being taken will serve as an infection control model for TB facilities throughout the region.

Another component of the project involves the development of a computerized data management and information system for MDR TB patients. Lorna Thorpe, PhD, International Activities' EIS Officer, began developing this system in August 2000. The system will be used for case management, better MDR TB surveillance, and outcome studies. It will also be exportable for use by other NTPs in the region that are implementing DOTS-plus programs for MDR TB. Building epidemiologic capacity is also a component of establishing the Center. This has involved working with the NTP staff on the design and implementation of a risk-factors study for MDR TB and also includes staging a basic epidemiology training course for the staff scheduled for May 2001. Finally, the first of three 3-week MDR TB training courses planned for 2001 for physicians from other countries in the region, including Russia, was held in late January.

Future plans for continued development of the Center as a sustainable resource for MDR TB training in the region include further expansion of training capabilities, to meet the growing demand of TB programs in the region for education of clinicians and program managers. A study of additional rapid-diagnostic technologies is also slated for the Center. The analysis of the cost-effectiveness of these technologies will be critical to determining their feasibility for use in resource-limited countries such as Latvia. Broadening infection control efforts

to include smaller regional TB facilities, clinics, and prison facilities within the country is planned. It is hoped that the measures taken will serve as a model of TB infection control for the region. Also, given the high level of alcoholism and its role in the interruption of patient treatment in Latvia, effective approaches and strategies will be pursued for managing these patients to increase treatment adherence. This is a great need throughout the region, where alcoholism is a common problem.

—Reported by Charles D. Wells, MD
Division of TB Elimination

Use of a Computerized TB Register for Automated Generation of Case Finding, Sputum Conversion, and Treatment Outcome Reports

Background

During the 1990s, sub-Saharan Africa experienced an explosive increase in TB. Public health workers needed tools to strengthen TB surveillance activities and TB program management in the region. These tools had to be tailored to and compatible with local circumstances. For example, many countries follow the International Union Against TB and Lung Disease/World Health Organization (IUATLD/WHO) guidelines for TB recording and reporting. These guidelines recommend the generation of quarterly reports on the incidence of new cases and on treatment outcomes for cohorts enrolled 9 to 12 months previously. These reports serve as an important management tool to assess program performance and to determine future needs and direction. They also form the basis of ongoing TB surveillance. Manual generation of such reports is often extremely time-consuming, which may lead to failure to complete the reports in a timely fashion. Furthermore, the

manual analysis of data, particularly for the cohort analysis, can be subject to error.

Development of the Electronic TB Register

In response to these issues, a user-friendly, menu-driven computer program based on EpiInfo version 6.04c was developed¹. The Electronic TB Register, initially known as BOTUSA, was created in 1995 as part of a collaboration between the Ministry of Health of Botswana and CDC. The program was designed with three important principles in mind: 1) it should be capable of generating the standard case-finding and cohort analysis reports recommended by IUATLD/WHO guidelines; 2) it should include additional tools for TB program management and support at the district level (e.g., lists of patients for whom 2-month sputum specimens had not yet been obtained); and 3) it should be simple and highly user-friendly.

Implementation

The software was implemented in Botswana in 1995 after training was provided to the 22 District TB Coordinators, none of whom had previously had any computer experience. The software was installed on existing computers in each of the district health offices and, by 1996, was completely operational in all districts. Use of the software completely replaced manual compilation at the district level, with each District TB Coordinator entering the data, maintaining an ongoing electronic database, and producing district case-finding and cohort analysis reports. By 1997, data from the districts were being merged at national level to create a national database and produce national

reports; the software was considered an integral part of the Botswana National TB Program. Subsequently, the software has been implemented in two of the nine provinces of South Africa, Lesotho, and three of the 12 districts of Namibia, with plans to extend to an additional two South African provinces and to Malawi, Tanzania, and Swaziland in the near future.



Training of TB Coordinators in South Africa

Botswana's TB register

In Botswana, the TB register is maintained on paper in a log book at the facility level, with manual data entry. The TB coordinators visit all health facilities in their district at regular intervals to provide program support and supervision, ideally monthly but, at a minimum, quarterly. During these visits, they review the registers for

accuracy and completeness and hand-copy the information into their own district registers. Records for patients under treatment are updated with any new information.

At the district level, the TB coordinators enter information into the computer as it becomes available from the health facility visits. At this point, they are expected to have completed and validated the quality of the data at the end of each quarter so that the quarterly report and cohort analyses can be performed. In addition to generating paper reports for district-level management purposes, they send the data to the national level. The data are expected to arrive within 1 month of the closing of the quarter, although in reality, substantial delays may occur.

At national level, the data from the district

level are merged into the national data base as they become available. The data for each district are examined for quality and completeness. Feedback is given to the districts, and corrections are requested. Only when the data from all the districts are available and considered to be of adequate quality is the final analysis performed. An annual report is published using the cumulative data for all four cohorts in the calendar year.

South Africa's TB register

In South Africa, the system functions at the provincial level. The TB register at the health facility level is based on a four-page form with autocarbons, with each page a different color. At the end of the first quarter, the first sheet is detached and sent to the District TB Coordinator, who enters the data. At the end of the second quarter, the second page, which contains information on sputum conversion, is detached and sent to the coordinator for ongoing data entry. The third page is sent in 9 to 12 months after the beginning of treatment and contains the treatment outcome data. The fourth sheet remains in the facility as part of its permanent register. This recently implemented system differs from the previous one, in which each facility was responsible for producing aggregate quarterly and cohort reports. As in Botswana, data are examined for completeness, entered, and analyzed at district level. They are then sent to the provincial level, where the combined data are examined and analyzed. The aggregate hard-copy reports at the provincial level are then sent to the national level for inclusion in the national report.

Program management

The Electronic TB Register has a number of patient management and supervision functions. These include the ability to

generate facility-specific lists of patients who are active or sputum-smear positive and those who have died, defaulted, transferred out, or not converted their sputum. In addition, it can provide lists of potential duplicate patient entries and also permits the TB coordinators to identify whether patients who have transferred out were followed up in their new location.

Lessons learned

As a result of the Botswana experience, a number of important lessons were learned. Some of these lessons have resulted in further software enhancements, improved initial orientation for district medical staff, and modifications in training methods. The process of implementation, however, also highlighted underlying problems in the paper-based TB data collection system, which were subsequently addressed.

In Botswana, acceptance by the District TB Coordinators was generally high, though considerable support was required early in the implementation process to prevent frustration. Acceptance by the Senior District Medical Officers was initially more variable, with some reluctant to allow the District TB Coordinators, who are under their direct supervision, to use the district computer. This was remedied by providing demonstrations of the software to the Senior District Medical Officers, who readily acknowledged and accepted its value as a management tool in their jobs. In other countries where the software has been implemented, great efforts are now made to provide orientation to the supervisory medical officers as well as to health information systems staff at both district and central levels.

A second important problem was lack of uniformity in the computer equipment in the various districts, making it highly difficult for

the central TB unit to provide adequate technical guidance and support. In 1997, an international donor provided all the district health offices in Botswana with updated computers and printers, which has greatly improved the performance of the system.

The need for ongoing training emerged as an important issue in the effective implementation of the software. Although the system was highly user-friendly, a single training session was insufficient. Three training sessions, held several months apart, were conducted, allowing the users to learn from their experience and ask additional questions.

Although the accuracy and completeness of the register improved after implementation of the software, timeliness of reporting to the central TB unit did not improve. The delay appears to be due largely to the inability of the District TB Coordinators to visit the individual health facilities on a regular basis to collect information from the facility-based registers.

Another important lesson has been the need for specifically dedicated central-level staff to provide training and support for the District TB Coordinators, validate the data coming in from the districts, and make minor modifications in the software to serve local needs.

A final but extremely important lesson has been that the software is only a tool for the compilation and analysis of data at the district level. Improper recording of data in the paper-based register and failure to transmit information to the district level result in poor reporting. For example, in Botswana a validation study of data on diagnostic sputum smears showed that

60% of patients recorded as having missing smear results actually had sputum collected and analyzed in the laboratory². The vast majority of missing results had simply not been transcribed onto the patients' treatment card and thus were not in the register. Computerization can only succeed when adequate paper-based recording systems are in place at the facility level and where data are routinely compiled and evaluated for completeness and accuracy at the district level.

The Electronic TB Register has proven to be an acceptable and powerful tool for TB surveillance and program management in the five sites where it has been implemented. It functions well at the national level in Botswana, a country with 1.6 million people and 8000 TB cases annually; to date it is functioning well in two provinces of South Africa, the largest of which has more than 16,000 cases annually. Its feasibility in countries with several hundred thousand TB cases annually has not been evaluated, although theoretically it should be able to handle very large numbers of cases if computer memory is adequate.

—Reported by Peter Vranken
The BOTUSA Project
Gaborone, Botswana

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TRAINING AND EDUCATIONAL MATERIALS

"TB Elimination: Now Is the Time" Fact Sheet

A fact sheet entitled "TB Elimination: Now Is the Time" has been updated. It is attached here as a PDF file (you need Acrobat Reader software to access PDF files):<http://www.cdc.gov/nchstp/tb/worldtb2001/nowisthetime.PDF>

This fact sheet was updated based upon communications research conducted by the Communications and Education Branch (CEB). An update on the research as well as information about a TB elimination communication plan will be included in the next issue of *TB Notes*.

Respirators: Your TB Defense

TB experienced a resurgence in the United States during the late 1980s and early 1990s, reversing decades of decline. This increase in TB cases led to the emergence of multidrug-resistant strains, hospital outbreaks, and the infection of many health care workers. A number of workers even lost their lives to the disease. Thanks to the aggressive nationwide response, the occurrence of TB appears to be decreasing at this time, but it remains a concern for health care workers. CDC's *MMWR* entitled "Guidelines for preventing the transmission of *Mycobacterium tuberculosis* in health-care facilities, 1994," includes a recommended hierarchy of infection control measures. These consist of administrative controls, engineering controls, and personal respiratory protection. Although administrative controls are considered the most effective defense against

transmission of *M. tuberculosis* in health care settings, personal respiratory protection must be used in certain high-risk settings.

Respirators: Your TB Defense is an educational program for health care workers on TB prevention through respirator use. The program covers the history of TB in the United States, infection control measures, and the selection and use of respirators. The program is narrated by multiple Emmy award-winning actress Loretta Swit, and is 17 minutes long. To request a copy, contact 1-800-35 NIOSH, or www.cdc.gov/niosh, and request #214 from the NIOSH video library.

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PERSONNEL NOTES

We are pleased to announce the selection of 10 people for public health advisor training positions in the New Jersey, Florida, and Chicago TB control programs. They began their new jobs with DTBE on January 16, 2001.

Tina Albrecht has been a biological science technician with the U.S. Department of Agriculture in New Orleans, Louisiana, since July 1999. She earned a bachelors degree in biology from California State University, Chico, California, in 1994 and a masters degree in tropical medicine from Tulane University in 1999. She served with the Peace Corps in West

Africa from 1995 to 1997. Tina has been assigned to Ft. Lauderdale, Florida.

Vincent Fears is a public health advisor/disease intervention specialist formerly with CDC's Division of Sexually Transmitted Diseases Prevention (STDP), most recently on assignment in Baton Rouge, Louisiana. He had previous STDP assignments in West Palm Beach, Florida, and Cleveland, Ohio. He is a 1991 graduate of Alabama State University with a bachelor of science degree in biology. Vincent was assigned to Chicago, Illinois.

Regina Gore from Lithonia, Georgia, was formerly a public health advisor with CDC's Division of Sexually Transmitted Diseases Prevention (STDP) with assignments in Fulton County, Georgia; Tampa, Florida; and Kansas City, Missouri. Since 1994 she has worked with a community mental health center in Miami and a community-based organization in Decatur, Georgia, that provides services and support to HIV-infected persons. She earned a bachelor of science degree in journalism from Florida Agricultural and Mechanical University in 1985. Regina was assigned to West Palm Beach, Florida.

Larry Johnson recently retired from the U.S. Air Force. He was stationed at various installations in the United States, Germany, and the Philippines and for most of his career worked in environmental health and public health programs, including clinics that diagnosed and treated persons with tuberculosis. He earned a degree in environmental medicine technology

from the Community College of the Air Force in 1995 and has extensive computer training, knowledge, and experience. Larry was assigned to Orlando, Florida.

Theodore Misselbeck has been an alcohol and drug abuse counselor with Seabrook House in Millville, New Jersey, since 1995. He previously worked in the pharmaceutical industry, served with New Life Ministries, and taught school. He holds a bachelors and a masters degree in health education from Montclair State University in New Jersey. Theodore (Ted) was assigned to West Palm Beach, Florida.

Juan Ortiz has been employed as a health services representative with the Palm Beach County Health Department in Florida since 1991 and has extensive experience as a TB outreach worker. He is also a former school teacher. He graduated from Inter-American University in San Juan, Puerto Rico, with a degree in sociology. Juan was assigned to Jersey City, New Jersey.

Halsey Rhodes from Ft. Walton Beach, Florida, was a preventive medicine technician with the U.S. Coast Guard from 1993 to 1998. Since then he has worked with the Escambia County Department of Public Safety and as a disease intervention specialist with the Gadsden County Health Department, both in Florida. He earned a bachelors degree from Regents College in Albany, New York, in 1999. Halsey has been assigned to Edison, New Jersey.

Frank Romano has been a disease intervention specialist with the New Orleans TB program since 1995. In

1998, he was assigned surveillance coordination responsibilities and had the lead for verifying and reporting TB cases in Orleans Parish. He holds a bachelors degree in communications from the University of New Orleans. Frank was assigned to Chicago, Illinois.

Kathryn Ruck is a TB disease intervention specialist employed by the Louisiana Department of Health and Hospitals. She started working in the TB program in New Orleans in 1997. Previously she worked as a research associate in the Department of Neuroscience at Louisiana State University Medical Center. She earned a bachelors degree in psychology from Loyola University in 1993. Kathryn has been assigned to Jersey City, New Jersey.

Michele Thomas from Chicago is a former public health advisor/disease intervention specialist with the Division of Sexually Transmitted Diseases Prevention (STDP) with assignments in Chicago, Illinois, and Memphis, Tennessee, from 1989 to 1994. Since then she has worked as a health program representative with the AIDS/STDP program of the Minnesota Department of Health and was most recently a case manager with a foster care agency in Chicago. She has a bachelors degree in psychology from Madonna College in Livonia, Minnesota. Michele was assigned to Chicago, Illinois.

Other Personnel Notes:

Mack Anders, Deputy Chief of the Field Services Branch, DTBE, retired from federal service on January 3, 2001, concluding a 39-year career with CDC. Mack joined CDC as a co-op with the

Division of Sexually Transmitted Diseases (DSTD) in Fayetteville, North Carolina, in February 1962. He had a subsequent DSTD assignment in New Orleans from 1963 to 1964. In January 1965, he was recruited to DTBE and assigned to Philadelphia. There he was responsible for managing newly funded CDC TB projects designed to develop public health clinic capacity, thus paving the way for the eventual closing of the sanatoriums in Pennsylvania. From March 1966 to June 1968, he was assigned to Houston, Texas, where he established a clinic-based TB program as a joint venture of the Houston City Health Department and the Harris County Hospital District. In July 1968, he transferred to Raleigh, North Carolina, and was Assistant Chief of the state health department's TB Control Section with responsibility for management of CDC-funded projects in 40 high-incidence counties. In May 1972, he was selected for a 1-year assignment on the Texas-Mexico border to represent the TB Division of the Texas State Department of Health in binational efforts to establish clinics and strengthen TB control in cities on both sides of the border. From May 1973 to January 1975, he was assigned to Austin and had lead responsibility for developing, initiating, and managing the TB program manager and public health investigator concepts in the state health department's regional offices. Mack transferred to the South Carolina Department of Health and Environmental Control in January 1975, and a year later was named Director of the TB Control Division by the State Health Officer. Under his leadership, incentives and enablers funded by the American Lung Association were introduced to enhance patients' compliance with treatment. This strategy rapidly became a model for other state and local TB programs. Mack was selected for a program consultant position

in the Program Services Branch (now Field Services Branch) of DTBE and transferred to Atlanta in May 1983. In September 1988, he was selected for the position of Chief of the new Program Operations Section and in this capacity managed consultation and technical assistance services to state and local health departments and supervised the division's field public health advisors. He played a pivotal role in the placement and training of 25 public health associates in the New York City Department of Health in 1993 and 1994. This was the first entry-level training program for PHAs to be conducted by a division other than DSTD. In September 1996, Mack was selected for the Deputy Chief position in the Field Services Branch. His responsibilities and influence touched a wide range of the branch's functions: policy development; program planning, implementation, and evaluation; resource allocation; staff training and development; field operations; and human resources management. One of his final contributions was spearheading DTBE's resumption of recruitment and training of entry-level public health advisors in order to keep pace with the demand from health departments for direct assistance with the management of TB programs in the United States.

Mack also served in several temporary duty assignments. In 1975, he managed TB screening activities in the Vietnamese Refugee Camp at Fort Indiantown Gap, Pennsylvania. In 1980, he was assigned to the Federal Emergency Management Agency's Disaster Field Office, Vancouver, Washington, to assist with CDC's study of the health effects of the Mount Saint Helens eruptions. He was detailed to the U.S. Agency for International Development (USAID) in Moscow three times during 1998 and 1999 to help develop and implement CDC / USAID / WHO directly

observed therapy projects in Russia.

Although retired from federal service, Mack plans to continue working as a consultant and looks forward to having more time to spend with his family and pursue other interests such as hiking mountain trails, fly fishing, and restoring antique furniture.

Paul Arguin, MD, joined the International Activity of DTBE as a medical officer on November 1, 2000. He is assigned as a project officer for one of the three TB control demonstration projects in Russia, and is also very involved in TB/HIV activities coordinated with GAP. Paul was an EIS officer from 1997 to 1999, assigned to the Viral and Rickettsial Zoonoses Branch in the National Center for Infectious Diseases. Most recently, prior to returning to CDC, he was the Territorial Epidemiologist and Director of the HIV/STD/TB Program in the U.S. Virgin Islands. Paul earned his bachelor's degree in zoology from George Washington University, Washington, DC, and obtained his medical degree from Georgetown University School of Medicine, Washington, DC. He is board certified in internal medicine and infectious diseases. He was a fellow in infectious diseases at Stanford University and his residency in internal medicine was with Oregon Health Sciences University, Portland, OR.

Mona Bernstein, MPH, program manager for the Francis J. Curry National TB Center for the past 5 years, is leaving the San Francisco Model Center to take a position as the assistant director of the Pacific AIDS Education and Training Center. Her new job, also based in San Francisco, started May 1. Mona's last day with the Model Center was April 30.

Debra Carter has been selected for a new

position in the Office of the Director (OD) Resource Group. Debra began her career at CDC and DTBE in November 1997 in the worker trainee program. She has been diligently mastering her position as an Office Automation Clerk in OD. On January 28, 2001, she was promoted to the position of Administrative Operations Assistant.

Jackie Elliott has left her DTBE public health advisor position in Philadelphia for a position with the HIV program in Atlanta. She began her employment with CDC in February 1993 as a DTBE Public Health Associate I in New York City. Jackie held increasingly responsible TB program positions until April 1997, when she was transferred to Los Angeles. In LA she was assigned to a team that reviews TB cases in the city. In August 1998 Jackie was transferred to Philadelphia, where she served as the assistant to the senior public health advisor.

Barbara Ellis, PhD, joined the division on January 17. Barbara is the Surveillance and Epidemiology Branch's newest senior epidemiologist. She has assumed primary responsibility for analyzing existing and future data from the National Tuberculosis Surveillance and Genotyping Network. She received her PhD in molecular microbiology and Immunology from Johns Hopkins University. She has worked at CDC since 1996, first in the Viral and Rickettsial Zoonoses Branch, DVRD, NCID, conducting studies on the molecular epidemiology of *Bartonella*, and most recently in the Office of Health and Safety. Barbara is assigned to the Epidemiologic Studies section.

Pat Farah has been selected to a new position in the OD Resource Group. Pat began her career at CDC in August 1991 in the Division of Oral Health. She came to

DTBE in July 1999 as a Staff Specialist in the Resource Group. On January 28, 2001, she was promoted to the position of Funding Resource Specialist.

Phillip Finley has been selected for the vacant TB PHA position in Frankfort, Kentucky. Phil will be assigned to the state TB program and will function as a key program advisor. Phil began his tenure with CDC in 1989 in Broward County, Florida, as a PHA in the Division of Sexually Transmitted Diseases Prevention (DSTD/P). In June 1990, Phil transferred to Philadelphia, and in March 1993 he was reassigned to Hillsborough County (Tampa), Florida. In September 1995, while in Tampa, he was assigned as the training coordinator for the state HIV/TB/STD prevention training center. From February 1996 until January 1999, he served in the New Orleans, Louisiana, STD program as a special projects coordinator. Most recently, Phil was assigned to the Lexington-Fayette County Health Department as a first-line supervisor overseeing the activities of four disease intervention specialists who cover 64 counties. He managed the STD/P budget for the county and was a key technical consultant to county health officials as well as surrounding local providers, including jail and detention camp medical staff. Phil also designed and produced a 3½-hour training video about treatment recommendations. He reports to Frankfort on May 6.

Alstead (Al) Forbes was appointed acting project manager of the Tuberculosis Information Management System (TIMS) project, effective February 12. In this capacity he will be coordinating the training and help desk functions of the TIMS project. He began working with CDC in February 1993 as a public health advisor assigned to the New York City TB Control

Program. Al began working in the interviewing and contact investigation units in Brooklyn; upon his first promotion, he began work in the DOT unit. Upon his second promotion he began to serve as a lead public health advisor for the return-to-service unit. In April 1997, Al was transferred to the New Jersey TB program. In this assignment he worked with the field staff, compiled program management reports, and assisted the senior public health advisor. Al was then selected for the assistant TIMS project manager position in DTBE, and began his assignment on January 17, 1999, in Atlanta. He has been very ably assisting Kathryn Koski, the recent past TIMS project manager.

Michael Iademarco, MD, MPH, has been assigned Acting Associate Director for Science (ADS), DTBE, effective April 2, 2001, and will be selected for the position of ADS once the present hiring restrictions are lifted. Michael obtained his medical degree from the University of Virginia School of Medicine. In 1986, he was awarded a Reader's Digest Fellowship, Medical Assistance Program, and completed an externship with Maryknoll Missions in Bura, Kenya. He completed his internship and residency training in internal medicine at Temple University Hospital, where he also served as chief resident. Subsequently he completed a fellowship in pulmonary medicine at Washington University, where he also served as a postdoctoral fellow in the laboratory of Douglas Dean, PhD, Department of Internal Medicine and Department of Cell Biology and Physiology. Having successfully competed for several awards from the National Institutes of Health (NIH), Michael led and supervised a basic research laboratory focusing on VCAM-1 expression and its regulation by IL-4 in pulmonary endothelium during allergic inflammation.

He is board certified in internal medicine and pulmonary medicine. Michael also obtained a masters degree in public health from the St. Louis University School of Public Health. While in St. Louis, he served as attending physician at the Barnes-Jewish Hospital Medical Intensive Care Unit and at the Jewish Hospital Emergency Room. He also managed the Washington University Pulmonary Division's local computing area network, and served in the Clinic for Mycobacterial Diseases, where he became increasingly interested in TB as a public health problem. In August 1998, Michael was recruited to join DTBE's International Activity, where he has provided technical support for operations research projects in Vietnam, including quality control laboratory projects. He has also served as project officer for CDC / USAID-sponsored TB projects in the Philippines, and for a project to detect *M. tuberculosis* using an electronic sensor array and pattern analyzer. In 1999 and 2000 he served as codirector for the MPH course "TB: A Re-Emerging Health Problem" at the Emory School of Public Health. Michael holds joint appointments as Assistant Professor in the Department of Internal Medicine, School of Medicine, and Department of Epidemiology, Rollins School of Public Health, Emory University. In addition, he has authored or coauthored several peer-reviewed publications and book chapters. Michael is very interested in helping CDC address the unmet and growing needs in human subjects protection during the conduct of our public health activities. As Associate Director for Science, he now serves as the chief technical reviewer on the *TB Notes* Editorial Review Board.

Kathryn Koski has left the division to take a new position within the Division of STD Prevention, NCHSTP. Kathryn, who was

the project manager for the Tuberculosis Information Management System (TIMS), has accepted a position as Data Manager for the DSTDP. We thank Kathryn for her leadership and support of the TIMS project at a very critical time. Her last day with the division was February 9.

Bernadette Ford Lattimore, MPH, joined the Prevention Effectiveness Section of the Research and Evaluation Branch on March 5, 2001. Bernadette is a Public Health Prevention Specialist fulfilling her second CIO assignment in the 3-year fellowship known as the Public Health Prevention Service (PHPS). After graduating from Spelman College, Atlanta, Georgia, with a bachelors degree in natural sciences, she became an AmeriCorps member in Atlanta. Bernadette went on to work for such agencies as the Crohn's and Colitis Foundation and the Kerr White Institute for Health Services Research. She later obtained her masters degree in public health in social and behavioral sciences from Morehouse School of Medicine, also in Atlanta. While pursuing her degree, she was a visiting fellow in the Division of Violence Prevention in the Injury Center at CDC. Her first assignment in the Public Health Prevention Service was in the Community-Based Participatory Action Research Activity (CB-PARA) housed in the Division of Prevention Research and Analytic Methods (DPRAM), EPO. During her 6 months with REB, Bernadette will be responsible for developing the protocol for a study gathering comprehensive information on cultural factors affecting TB care for foreign-born patients. At the end of her 6 months with REB, Bernadette will then be assigned to a state or local health department for 2 years.

Eugene (Gene) Tamames, DTBE public health advisor (PHA) assigned to San

Antonio, Texas, has retired after 30 years of service to the U.S. government. During his tenure as a PHA with DTBE, he made substantive contributions to CDC's success in attending to the public health needs of U.S. citizens. For the past 16 years, as a DTBE field assignee in Puerto Rico, Tennessee, Florida, and Texas, Gene has provided outstanding service to these areas; he represented and promoted the needs of the programs to which he was assigned while carrying out and upholding the policies and guidelines of DTBE. For the past 6 years, since 1994, Gene served as DTBE's special projects assignee for the Texas Binational border projects. In this position he was responsible for developing and managing binational TB projects on the Texas - Mexico border. Prior to that, from 1993 to 1994, he served as the senior PHA in the Florida TB program, and from 1989 to 1993 was assigned to the Tennessee TB program. His previous assignment was with the Puerto Rico TB control program. Gene leaves behind a solid legacy of hard work and dedication to the three "sister city" border projects. He has nurtured and sustained an outstanding relationship with both the Texas and Mexico projects along the 1,000-mile border, and both U.S. and Mexican citizens will continue to benefit from his contributions and his dedication to the control of TB along our borders. Buena suerte and best of luck to you, Gene!

IN MEMORIAM

Jayne Ash, Director of the California Tuberculosis Controllers Association, passed away as a result of a vehicle accident on March 13, 2001. Jayne was a talented, creative, and valued member of the California Department of Health Services / Tuberculosis Control Branch (TBCB) and her passing is deeply mourned by her colleagues.

CALENDAR OF EVENTS

May 7-8, 2001

**TB Case Management for Nurses
Newark, New Jersey**

NJ Medical School National TB Center
Joni Heleotis
Tel: (973) 972-0978; fax: (973) 972-1064

May 18-23, 2001

**ALA/ATS 2001
97th International Conference of the ATS
San Francisco, California**

American Thoracic Society
Tel: (212) 315-8700; fax: (212) 315-6498
Web site: www.thoracic.org

June 19-21, 2001

**2001 National TB Controllers Workshop
Baltimore, Maryland**

National TB Controllers Association &
CDC/DTBE
NTCA contacts: Walt Page or Linda Smith
at (770) 455-0801
CDC/DTBE contacts: John Seggerson at
(404) 639-5328 or
Sherry Hussain at (404) 639-8989

July 20 - 22, 2001

**The North Carolina
Tuberculosis/Respiratory Disease
Institute**

**Blue Ridge Assembly YMCA Facility
Black Mountain, North Carolina**
*"Ending Neglect: Elimination of
Tuberculosis in the United States"*
The Institute of Medicine Report (IOM):
Impact on Local Services"
Meeting sponsors: American Lung Assn. of
North Carolina / NC Dept of Health and
Human Services, Tuberculosis Control
Branch / SC Dept of Health and
Environmental Control, TB Control Division
Contact: Sandy Powell, American Lung
Association of North Carolina
Tel: (919) 832-8326

September 22-25, 2001

**2001 ICAAC
41st Interscience Conference on
Antimicrobial Agents and Chemotherapy
Chicago, Illinois**

www.asmta.org/mtgsrc/41ICAAC.htm

October 25-28, 2001

**IDSA 2001 - 39th Annual Meeting of the
Infectious Diseases Society of America
San Francisco, California**

Regular abstracts are due May 22; late-
breaker abstracts are due August 20.
These can be submitted electronically by
visiting the abstract site at
<http://idsa01.agora.com/papersubmitter>

November 1-4, 2001

**32nd IUATLD World Conference on Lung
Health
Paris, France**

Deadline for submission of abstracts: May
15, 2001

For more information on the scientific
program and abstracts, please contact:
The International Union Against
Tuberculosis and Lung Disease (IUATLD)
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For more information on registration, hotel
accommodations, and the exhibition,
please contact:

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